



# TEST REPORT

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## COMPLIANCE TEST REPORT

|                        |                                             |
|------------------------|---------------------------------------------|
| EUT Description        | Wireless Module Installed in Convertible PC |
| Brand Name             | Lenovo                                      |
| Model Name             | Yoga Book 9 13IRU8                          |
| FCC ID                 | PD9AX211D2                                  |
| Date of Test Start/End | 2023-03-28/2023-03-28                       |
| Features               | IEEE802.11a/b/g/n/ac/ax                     |

|                      |                                                                       |
|----------------------|-----------------------------------------------------------------------|
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|                            |                                                                                                   |
|----------------------------|---------------------------------------------------------------------------------------------------|
| Test Report identification | 230210-01.TR05                                                                                    |
| Revision Control           | Rev. 00<br>This test report replaces any previous versions of this test report<br>(see Section 1) |

Reviewed by

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## 1. Document Revision History

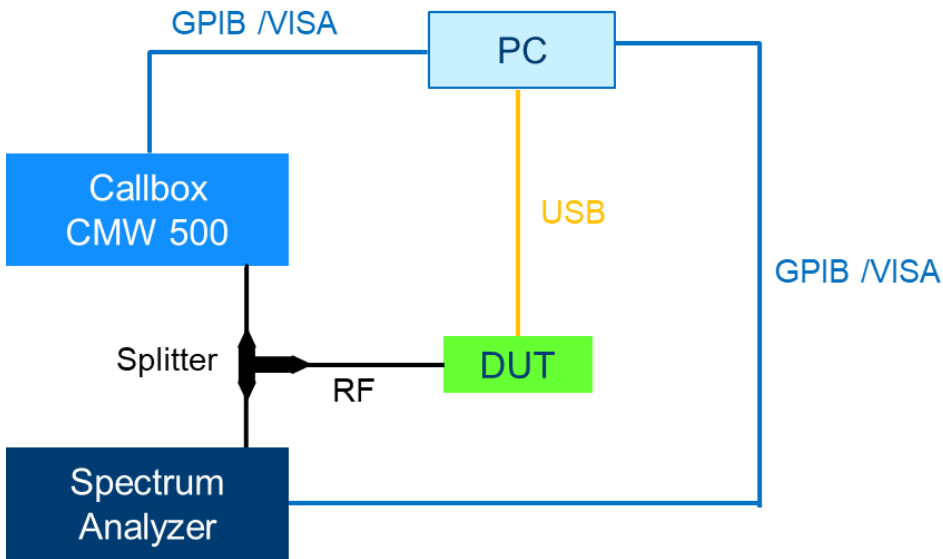
| Revision # | Date       | Modified by   | Revision Details |
|------------|------------|---------------|------------------|
| Rev.00     | 2023-03-28 | Robin LUCIANI | First Issue      |

## 2. Test Setup

The conducted power measurement test setup is described in the following and illustrated in Figure A.1.

- The DUT which is a AX211 WiFi module is installed inside a Convertible PC from Lenovo model Yoga Book 9 13IRU8.
- A control PC is used to configure the Call Box as an access point to manage the uplink and downlink data traffic.
- Uplink signal power is measured with the Spectrum Analyzer and record by the PC with a maximum time resolution of 0.3333 msec.
- Uplink signal from the module is fed through a 3 dB Power Splitter, which delivers an equal amount of signal to the Spectrum Analyzer and the Call Box. The Splitter has high isolation between the Spectrum Analyzer and the Call Box.

Figure.1 – Validation using conducted power measurement test setup.



### 3. Test Sample

| Sample | ID #          | Description                                       | Model                 | Serial #      | Note |
|--------|---------------|---------------------------------------------------|-----------------------|---------------|------|
| #1     | 230210-01.S04 | Wireless Module<br>Installed in<br>Convertible PC | Yoga Book 9<br>13IRU8 | 1782155800003 | -    |

### 4. Test Equipment List

Equipment and accessories used for the conducted power measurement test setup are listed below. The Test Platform (DUT), test setup and associated equipment are shown in A.1.3.

| ID#     | Device                  | Type/Model | Serial # | Manufacturer       | Cal. Date  | Cal. Due Date |
|---------|-------------------------|------------|----------|--------------------|------------|---------------|
| 025-005 | Communication<br>Tester | CMW500     | 161493   | Rohde &<br>Schwarz | N/A        | N/A           |
| 271-000 | Spectrum<br>Analyzer    | FSL6       | 102143   | Rohde &<br>Schwarz | 2022-04-25 | 2024-04-25    |
| 455-001 | RF Cable                | -          | -        | Pasternack         | 2023-02-23 | 2024-02-23    |
| 455-002 | RF Cable                | -          | -        | -                  | 2023-02-23 | 2024-02-23    |
| 455-003 | RF Splitter             | -          | -        | Pasternack         | 2023-02-23 | 2024-02-23    |

### 5. Test Results

#### 5.1. SAR Tune-Up Power as per SAR assessment

| Chain A             |                       | Chain B             |                       |
|---------------------|-----------------------|---------------------|-----------------------|
| IEEE 802.11g<br>CH6 | IEEE 802.11a<br>CH120 | IEEE 802.11g<br>CH6 | IEEE 802.11a<br>CH120 |
| 17.50               | 16.00                 | 17.50               | 17.00                 |

**5.2. TAS Validation for 2.4 GHz Band on Channel 6**

*Table B1 – Test Cases for 2.4 GHz Channel 6*

| Test Case # | Channel | Chain | Channel Bandwidth | Measurement Averaging Period | Measurement Time Resolution | Max Tune-Up Power [dBm] | SAR Power in Bios Table [dBm] |
|-------------|---------|-------|-------------------|------------------------------|-----------------------------|-------------------------|-------------------------------|
| 1           | 6       | A     | 20 MHz            | 100 sec                      | 0.3333 msec                 | 20.00                   | 17.50                         |
| 2           | 6       | B     | 20 MHz            | 100 sec                      | 0.3333 msec                 | 20.00                   | 17.50                         |

Results of test cases in Table B1 are shown in the following plots.

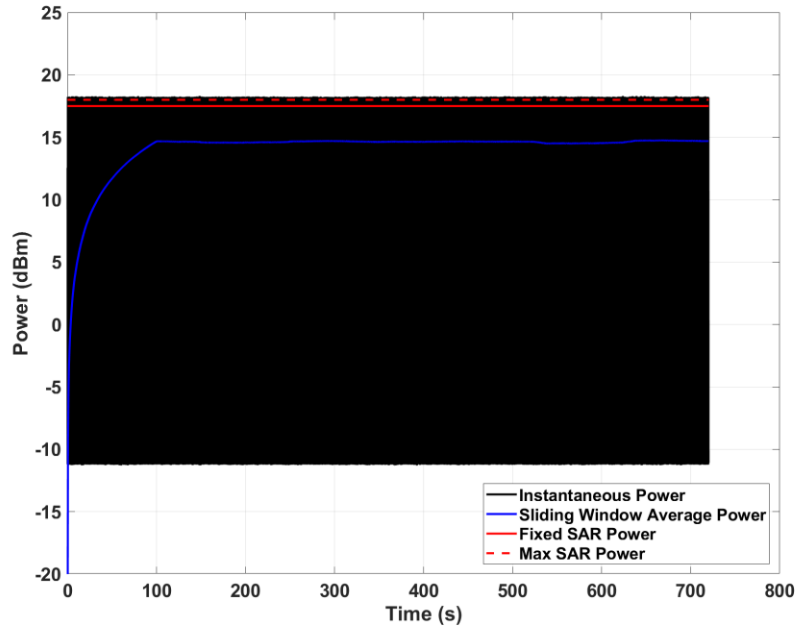
Case #1: 2.4 GHz– Ch 6 – Chain A – BW 20 MHz – Rate 12 Mbps  
Averaging Period 100 sec – Tmax 720 sec

**Max Tune Up Power [dBm]**

20.00

**SAR Power in Bios Table [dBm]**

17.50



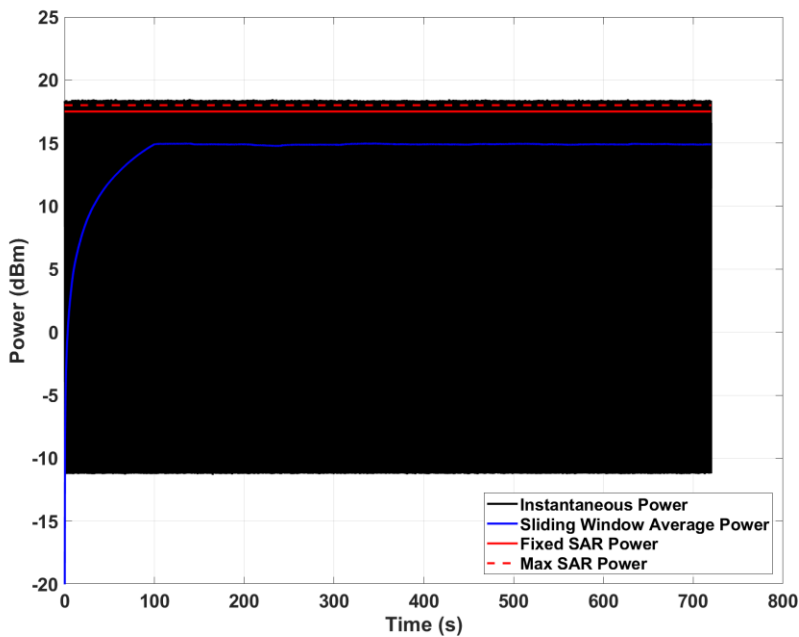
Case #2: 2.4 GHz– Ch 6 – Chain B – BW 20 MHz – Rate 12 Mbps  
Average Period 100 sec – Tmax 720 sec

**Max Tune Up Power [dBm]**

20.00

**SAR Power in Bios Table [dBm]**

17.50



**5.3. TAS Validation for 5 GHz Band on Channel 120**

*Table B2 – Test Cases for 5 GHz Channel 120*

| Test Case # | Channel | Chain | Channel Bandwidth | Measurement Averaging Period | Measurement Time Resolution | Max Tune-Up Power [dBm] | SAR Power in Bios Table [dBm] |
|-------------|---------|-------|-------------------|------------------------------|-----------------------------|-------------------------|-------------------------------|
| 1           | 120     | A     | 20 MHz            | 60 sec                       | 0.3333 msec                 | 20.00                   | 16.00                         |
| 2           | 120     | B     | 20 MHz            | 60 sec                       | 0.3333 msec                 | 20.00                   | 17.00                         |

Results of test cases in Table B2 are shown in the following plots.

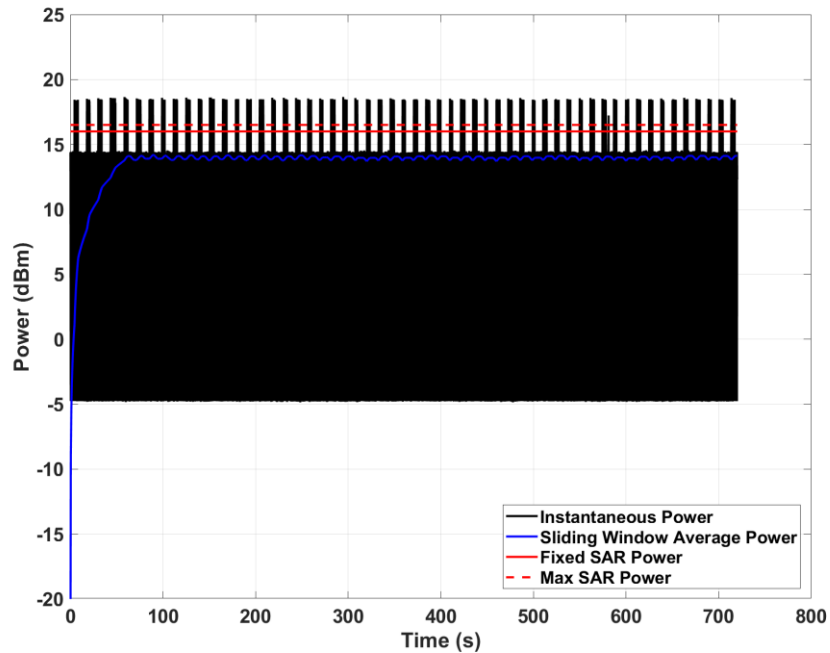
Case #1: 5 GHz– Ch 120 – Chain A– BW 20 MHz – Rate 12 Mbps  
Averaging Period 60 sec – Tmax 720 sec

**Max Tune-Up Power [dBm]**

20.00

**SAR Power in Bios Table [dBm]**

16.00



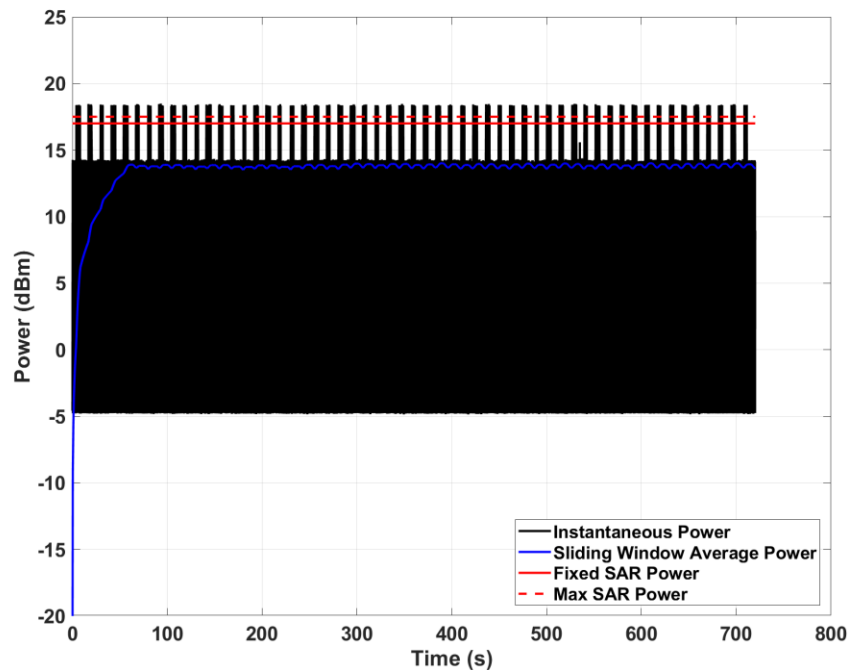
Case #2: 5 GHz– Ch 120 – Chain B – BW 20 MHz – Rate 12 Mbps  
Average Period 60 sec – Tmax 720 sec

**Max Tune-Up Power [dBm]**

20.00

**SAR Power in Bios Table [dBm]**

17.00



### **End of the report**

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